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Claims

1. A Cartesian loop transmitter (100) comprising a
5 forward path (102) and a feedback path (104), each
of these paths comprising an I-channel and a Q-
channel, as well as an isolator eliminator (106),
characterized in that said transmitter (100)
comprising:
10 a) a first low pass filter (138) and a first band
pass filter (140) connected to I-channel at LP2;
b) a second low pass filter (142) and a second band
pass filter (144) connected to Q-channel at LP2;
c) a first root mean square detector (146) collecting
15 signal from said first low pass filter (138) and
from said second low pass filter (142);
d) a second root mean square detector (148)
collecting signal from said first band pass filter
(140) and from said second band pass filter (144);
20 e) a divider (150) connected to said first and said
second root mean square detectors (146 and 148);
f) a comparator (152) connected to said divider
(150); and to
g) a microprocessor (154) connected to an input
25 attenuators (108) and (110) on said I- and Q-
channels;
2. The Cartesian loop transmitter (100) of claim 1
wherein a memory (156) is connected to said
30 microprocessor (154);
3. A method of adjusting an output level of a Cartesian
loop transmitter (100) in a digital radio system,
the method comprising the steps of:

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- a) applying a factory predefined attenuation setting (202) for adjusting said output level if attenuation setting for a previous slot is not available (200); or
 - 5 b) applying said attenuation setting obtained in previous (204) slot for adjusting said output level in a current slot;
 - c) measuring an on-channel baseband signal level (206) at LP2;
 - 10 d) measuring a noise level (208) at predefined frequency offset at LP2;
 - e) calculating a ratio (214) of said noise level to said on-channel baseband signal level; and
 - f) if said ratio is above a threshold (216):
 - 15 increasing an attenuation setting (218) of an input signal;
 - g) storing (222) said attenuation setting in a memory.
- 20 4. The method according to claim 3 wherein steps c) through g) are repeated in a loop until said ratio is below said threshold.
 - 5 5. The method according to claim 3 or 4 wherein for determining said ratio a root mean square of said on-channel baseband signal level (210) and a root mean square of said noise level (212) are taken.
 - 25 6. The method according to any one of claims 3 to 5 wherein after increasing said attenuation setting a delay is applied (220) to execution of software which based on next samples, calculates said ratio and increases said attenuation setting.
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7. The method according to any one of claims 3 to 6 wherein in said step of storing said baseband signal level and said noise level measured at LP2 are stored in said memory.

8. A radio transmitter according to any one of claims 1 to 2 and which is operable to provide communications in at least TETRA and/or GSM and/or IDEN communication systems.

9. A radio communication device incorporating a circuit according to any one of claims 1 to 2.

10. A radio communication device operating in accordance with a method according to any one of claims 3 to 7.

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